CLEANER BURNING GASOLINE

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On-Road Performance

Motor vehicles represent a major investment both for individuals and businesses. Vehicle owners expect their vehicles to perform at a high level and many owners carefully choose the fuels and other automotive products that they purchase.

Any change in gasoline formulations can understandably raise questions for those who are concerned about the performance of their vehicles. This backgrounder contains information on the extensive performance tests that confirmed the compatability of cleaner-burning gasoline with the many types of on-road motor vehicles in use in California.

A separate backgrounder discusses a similar test program involving off-road vehicles and motorized equipment that use gasoline.

Background

In requiring the use of cleaner-burning gasoline throughout the state, the California Air Resources Board (ARB) recognizes that the fuel must perform well in motor vehicles.

Air Resources Board scientists worked closely with experts from the oil and automotive industries in developing the specifications for cleaner-burning gasoline. These specialists conducted laboratory and vehicle tests to ensure the fuel would not cause performance problems.

In 1995, ARB staff oversaw an extensive six-month performance test of the fuel involving more than 1,400 vehicles operated by seven public and private fleets throughout California. Both new and older (1970s and 80s) vehicles were used in the tests. Test vehicles drove more than 5 million miles on cleaner-burning gasoline. Fleet operators and ARB staff investigated any problems found in both test and control vehicles.

The test program did not find any problems in the test vehicles that could be attributed to the fuel. All fleet managers found that their vehicles performed as well on cleaner-burning gasoline as on current fuels. A small reduction in gas mileage can be expected in most motor vehicles, which is discussed below.

Air Resources Board

California Environmental Protection Agency

Representatives of oil refiners and automakers worked with ARB staff to oversee the test program. Major automakers endorse the use of cleaner-burning gasoline in their vehicles. Use of cleaner-burning gasoline will not affect vehicle warranties.

Gas Mileage

Gasoline mileage with cleaner-burning gasoline will average 1 to 3 percent less than with current and past fuels. This is due to the addition of oxygenates and the reduced level of heavier hydrocarbons. This causes a slight reduction in the energy content of the fuel.

Most motor vehicles experienced a small reduction in gas mileage when switching from non-oxygenated fuel to the oxygenated gasoline used statewide in winter months (and in Southern California during all of 1995). Service stations are expected to switch directly from these oxygenated fuels to cleaner-burning gasoline. The additional reduction in gas mileage following this switch to cleaner-buring gasoline should average about 1 percent.

An average vehicle's gas mileage will be 3 percent less with cleaner-burning gasoline than with traditional, non-oxygenated fuel. An average vehicle that has gotten 30 miles per gallon in the past on non-oxygenated fuel will get more than 29 miles per gallon on cleaner-burning gasoline.

Other factors under the motorist's control have a far greater effect on gas mileage. These include proper vehicle maintenance, maintaining proper tire pressure, and avoiding "jackrabbit" starts and high-speed driving. Weather and traffic conditions also have a greater effect than gasoline on fuel economy.

Despite its slightly lower fuel economy in comparison with conventional gasoline, cleaner-burning gasoline remains an extremely cost-effective measure to reduce air pollution.

1995 ARB Test Program

The 1995 vehicle test program enabled ARB staff and outside experts to evaluate the performance of cleaner-burning gasoline in real-life situations during a six-month period from February to August 1995.

These fleets were operated by the City of Sacramento Police Department, the County of Sacramento, Caltrans, the Bank of America, GTE California, Pacific Bell and California State University, Fresno. The fleets consisted of approximately 1,400 new and older passenger cars and light and medium-duty trucks. Sacramento city police vehicles were part of the test fleet.

Each of the seven fleets were divided into a test group that used cleaner-burning gasoline and a control fleet that used conventional fuel. Approximately 800 vehicles drove more than 5 million miles using cleaner-burning gasoline, and 600 vehicles used conventional fuel. Fleet managers kept records of mechanical problems and performance in both the test and control groups.

The fleet managers reported no difference in the performance of vehicles using conventional and cleaner-burning gasoline. Starting, idling, acceleration and power were normal in the test groups. There were no occurances of knocking, pinging and other common problems associated with fuel. Fuel economy remained within the expected range.

A relatively small percentage (about 3 percent) of vehicles in both the test and control groups developed fuel-system problems. Because such problems are common in older vehicles, ARB staff expected that a similar number of test and control vehicles would develop such problems due to normal wear and tear. The most common problems were fuel pump failures in vehicles with 80,000 or more miles.

ARB staff worked with the fleet managers to ascertain the cause of the vehicle problems. The failures largely were due to normal wear and tear or a faulty fuel-related part. ARB staff and the fleet managers found that cleaner-burning gasoline did not cause any increase in fuel-system problems.

A committee composed of representatives from ARB, oil refiners and automotive manufacturers helped set up the test program and reviewed the test results. The committee concurs with ARB staff that cleaner-burning gasoline is compatible with the wide range of motor vehicles in California.

In addition, Harley-Davidson conducted its own motorcycle test program and found that cleaner-burning gasoline performed well in motorcycles.

Fuel-System Problems Are Very Common in Motor Vehicles

The vast majority of motorists should not notice any difference in the performance of their vehicles following the introduction of cleaner-burning gasoline.

However, motorists should be aware that fuel-system problems, especially in older vehicles, are extremely common due to normal wear and tear. Vehicle owners should follow the maintenance schedule recommended by the vehicle's manufacturer.

The Air Resources Board is happy to answer any questions you may have relating to cleaner-burning gasoline and the performance of your vehicle. Please call the Air Resources Board toll-free at 1-800-922-7349. ARB representatives will be available during normal business hours to answer questions.